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REMARKS/ARGUMENTS

Claims 39-46 were previously canceled, and claims 1, 23, 47 and 69 have been amended. Upon entry of the above amendments, claims 1-38 and 47-69 will remain pending in the application.

Kinneberg '028 In View Of Pettus '588

At page 2 of the Office Action; it is stated that claims 1-12, 23-31 and 47-58 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kinneberg '028 in view of Pettus '588. However, at page 3, it is stated that "Regarding claims 3, 5, 9, 10-12, 14-15, 19, 21-22, 25, 27-28, 30-31, 33-35, 37-38, 49, 51, 55, 57-58, 60-61, 65, 67-68 it would have been obvious to select known material on the basis of its suitability for the intended use as a matter of obvious design choice and it would have been obvious to select the thickness or hardness of the layers since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art." Applicant has assumed that the above quoted statement from page 3 of the Office Action refers to the combination of Kinneberg '028 in view of Pettus '588. However, this appears inappropriate. Specifically, independent claims 13, 32 and 59 have not been rejected based on the combination of Kinneberg '028 in view of Pettus '588. Accordingly, it is inappropriate to reject dependent claims 14-22, 33-38 or 60-68 based on the combination of Kinneberg '028 in view of Pettus '588. Nevertheless, Applicant has assumed for purposes of this response that the Examiner meant to reject all of the pending claims except for claim 69 under 35 U.S.C. §103(a) based on Kinneberg '028 in view of Pettus '588. Further clarification is requested in the event that the Examiner disagrees with Applicant's arguments and assumptions concerning the rejection.

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The claimed invention is directed to imparting color to a bright metal surface by a process capable of adhering a clear, tinted, hard (highly cross-linked), organic coating on a bright metal surface, e.g., chrome, nickel, nickel alloys, tin, tin alloys and stainless steel. The prior art generally discloses processes for adhering a relatively soft, lightly cross-linked coating to various substrates. These softer, lightly cross-linked polymer coatings may be relatively easily adhered to ceramic, stainless steel and other substrates using the techniques disclosed in the prior art. However, it has been discovered that different techniques are required to adequately adhere relatively hard, highly cross-linked polymer films exhibiting scratch resistance, chemical resistance and a tensile hardness of from about 3 H to about 6 H, to a chrome or other bright metal surface. Specifically, Applicant has discovered that improved adhesion of hard, highly cross-linked polymer coatings to bright metal substrates may be achieved by treating the bright metal surface with an aqueous primer composition containing at least one silane adhesion promoter selected from aromatic amine functional silane-coupling agents and epoxy functional silane-coupling agents, prior to application of the polymer coating. As stated at page 7, line 31 through page 8, line 4, "preliminary testing has strongly suggested that epoxy functional silane-coupling agents (e.g., gamma-glycidoxypropyltrimethoxysilane) and aromatic amine functional silane-coupling agents, such as N-phenyl-gamma-aminopropyltrimethoxysilane are particularly useful for achieving strong, durable adhesion between a chrome plate and a cured polyurethane film." The applied prior art references do not teach or suggest the claimed process in which a chrome or other bright metal surface is treated with an aqueous primer composition containing at least one silane adhesion promoter selected from aromatic amine functional silane-coupling agents and epoxy functional silane-coupling agents, and wherein a polymer coating composition is applied directly over the chrome plate on which the aqueous primer was applied and dried.

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The Kinneberg '028 patent relates to a discovery that the addition of alkanolamines to dilute aminosilane solutions provides a composition useful for surface treatments of "ceramic, glass, and other siliceous, organic and metallic surfaces as well as on painted, polymeric, and other organic surfaces." It is alleged in the Kinneberg '028 patent that "certain less reactive amine bases (including tertiary amines of this invention) may be adapted to catalytically increase covalent bonding reactivity of the primary and secondary amines of the aminosilanes of prior art." The only primer compositions described in accordance with the invention of the '028 patent contain a combination of a non-aromatic aminosilane adhesion promoter and alkanolamines. The Kinneberg patent does not teach or suggest that the composition should or could contain either an epoxy functional silane adhesion promoter or an aromatic amine functional silane adhesion promoter. The references to (aminoethylaminomethyl)phenylethyl-trimethoxysilane and "high-silane epoxy" are clearly relating to prior art techniques for photoresists on microelectronics substrates, and refinishing of porcelain enamel and ceramic, respectively.

It has been suggested that because the Pettus '588 patent teaches the use of silane adhesion promoters to bond coatings to difficult-to-coat substrates, such as chrome plated steel, that it would have been obvious to one having ordinary skill in the art at the time of the invention to substitute the chrome substrate of Pettus '588 for the stainless steel substrate of the Kinneberg '028 patent, because the Pettus '588 patent "shows" that chrome plated steel is equivalent to stainless steel. It is respectfully submitted that this analysis is flawed. First, it assumes that the listing of chrome plated steel and stainless steel as substrates which are difficult to coat and which may be coated using the processes of the Pettus et al. patent implies that any process suitable for coating stainless steel would also be suitable for coating chrome and/or other bright metal surfaces. The mere fact that the Pettus et al. patent claims to disclose a process useful for coating both stainless steel and chrome plated steel does not suggest that the

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materially different process disclosed by Kinneberg would also be suitable for coating chrome or other bright metal surfaces. Further, the Pettus et al. patent does not teach or suggest that a polymer coating may be applied directly to a chrome or other bright metal surface that has been treated with a silane adhesion promoter, but instead teaches application of a polymer coating on an intermediate layer of a flexible primer coated over the adhesion promoted surface. Thus, rather than teaching or suggesting that the process described in the Kinneberg '028 patent is suitable for adhering a polymer coating directly to a chrome or other bright metal surface treated with a silane adhesion promoter, the Pettus et al. '588 patent teaches that an intervening intermediate layer of a flexible primer is needed. Thus, one having ordinary skill in the art would not have an expectation based on the teachings of the Pettus et al. '588 patent, that the process of the Kinneberg '028 patent would be suitable for achieving excellent adhesion of a polymer coating to a chrome or other bright metal surface.

Even if one were to employ the processes of the Kinneberg '028 patent for applying a polymer coating to a chrome or other bright metal surface, the result would be a process involving treatment of the substrate with a non-aromatic amine functional silane adhesion promoter, not an epoxy functional silane adhesion promoter or an aromatic amine functional silane adhesion promoter.

Because the Pettus et al. '588 patent only teaches that a process utilizing an intermediate layer of a flexible primer is suitable for coating chrome plated steel and stainless steel, not that chrome plated steel and stainless steel are equivalent, and not that either may be effectively coated using the techniques of the Kinneberg '028 patent, those having ordinary skill in the art would not find it obvious to utilize the teachings of the Kinneberg '028 patent for coating chrome or other bright metal surfaces. For this reason, and because the Kinneberg process does not utilize the required aromatic amine functional silane adhesion promoter and/or epoxy functional silane adhesion promoter,

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it is respectfully submitted that the claims are patentable over the combination of the Kinneberg '028 patent in view of the Pettus et al. '588 patent.

Shustack '391

Claims 13, 16-18, 20, 32, 36, 59, 62-64, 66 and 69 have been rejected under 35 U.S.C. §102(b) as being anticipated by the Shustack '391 patent.

The Shustack '391 patent does not anticipate the pending claims, and does not suggest the pending claims. In particular, all of the pending process claims require a step of curing a urethane composition to form a polyurethane film, and all of the article claims require a polyurethane film adhered to the metal substrate. The Shustack '391 patent does not teach or suggest curing a urethane composition to form a polyurethane film on a metal substrate, and does not teach or suggest an article having a polyurethane film adhered to a metal substrate, but instead discloses polymethacrylate and/or polyacrylate films and curing of compositions to form polymethacrylates and/or polyacrylates. Note that film polymerization in accordance with the teachings of the Shustack '391 patent involves photoinitiated copolymerization of an ethylenically unsaturated monomer with a urethane acrylate oligomer or urethane methacrylate oligomer. The resulting copolymer is not a polyurethane, but is instead a copolyacrylate and/or copolymethacrylate in which urethane acrylate oligomers and/or urethane methacrylate oligomers are incorporated into the polyacrylate and/or polymethacrylate chain. It is respectfully submitted that a radiation curable acrylate and/or methacrylate composition containing acrylate and/or methacrylate urethane oligomers is not the same as, and does not suggest, a polymer composition that may be reacted to form a polyurethane film.

Further, the Shustack '391 patent does not appear to teach or suggest processes involving a step of applying an aqueous primer composition to a bright metal surface, but instead discloses application of a coating composition directly over a printed metal

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surface, in which the silane adhesion promoter is contained in the coating composition, and is not dried onto the surface before application of the coating composition.

Finally, the Shustack patent indicates a strong preference for methacrylate functional silane adhesion promoters, not epoxy or amine functional adhesion promoters. Notably, all of the examples utilize methacrylic functional silane adhesion promoters, and do not include either epoxy or amine functional silane compounds. Further, the Shustack patent does not provide any teaching or suggestion for using aromatic amine functional silane-coupling agents.

For the above reasons, and most notably because the Shustack patent does not teach or suggest polyurethane films, but instead is limited to radiation curable acrylate and/or methacrylate copolymer films, the pending claims are not anticipated by Shustack, and are patentable over the teachings of Shustack.

Anticipation By Kinneberg '028

Claims 13, 16-18, 20, 32, 36, 59, 62-64, 66 and 69 have been rejected under 35 U.S.C. §102(e) as being anticipated by Kinneberg '028.

It is respectfully submitted that the pending claims are not anticipated by the Kinneberg '028 patent, and are allowable over the Kinneberg '028 patent for the reasons generally set forth above with respect to the rejection based on the combination of Kinneberg '028 in view of Pettus '588. More specifically, the Kinneberg '028 patent does not teach or suggest the use of a silane adhesion promoter selected from the group consisting of aromatic amine functional silane-coupling agents and epoxy functional silane-coupling agents, but instead is limited to teaching the use of non-aromatic amine functional silane-coupling agents in combination with alkanolamines.

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CONCLUSION

In view of the above amendments and remarks, it is respectfully submitted that the claims are patentable over the applied prior art references, such that the application is now in condition for allowance.

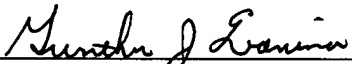
Respectfully submitted,

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December 3, 2003

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